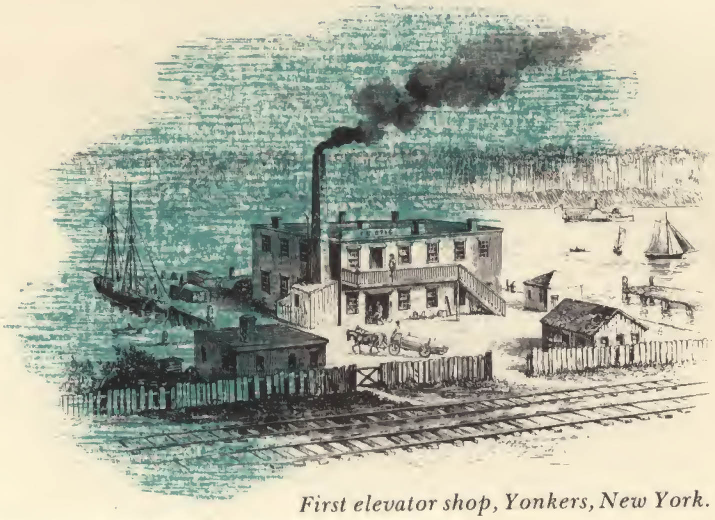
THE FIRST ONE HUNDRED YEARS

TIS ELEVATOR COMPANY



First elevator shop, Yonkers, New York.

1853

1953

United States, *Harrison, N. J.* United States, *Yonkers, N. Y.* Argentina, *Buenos Aires* Australia, *Sydney*

Brazil, *Rio de Janeiro* Brazil, *Sao Paulo* Canada, *Hamilton* England, *London*

France, *Bezons* Germany, *Berlin-Borsigwalde* Italy, *Milan* Italy, *Naples*

Japan, *Tokyo* Mexico, *Mexico City* Union of South Africa, *Wadeville* Uruguay, *Montevideo*

Otis factories throughout the world.

1953

621.877
O88f

A century of leadership . . .

ELISHA G. OTIS
1853

CHARLES R. OTIS
1861

NORTON P. OTIS
1890

WILLIAM D. BALDWIN
1898

FLOYD C. FURLOW
1918

JESSE H. VAN ALSTYNE
1923

Since the invention of the world's first safe elevator, the Otis organization has never relinquished its leadership in the field of vertical transportation. More people ride on elevators than on all other types of public transportation combined, and in America more people ride on Otis elevators than on all other types of elevators combined. Every major elevator development has been an Otis development, and the story of the elevator is nothing more nor less than the story of the Otis Elevator Company.

LEROY A. PETERSEN
1945

TULANE
LIBRARY

OTIS CENTENNIAL REPORT

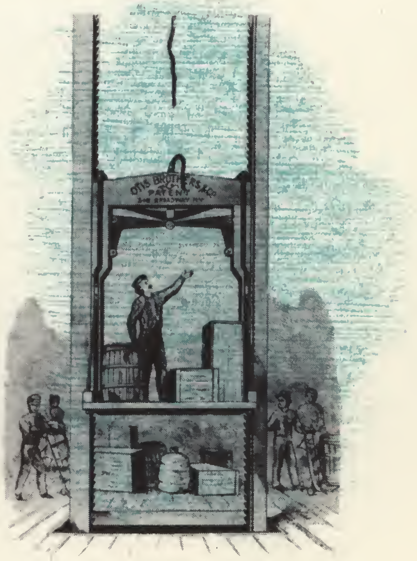
TO STOCKHOLDERS AND EMPLOYEES

THE world did not exactly beat a path to the door of the first elevator shop on the banks of the Hudson River at Yonkers, New York. Otis elevator sales at the end of the first year, 1853, amounted to precisely $900.00. The total inventory was $122.71, including a secondhand lathe, two oil cans, and the account book in which these figures were written.

The year before, Elisha Graves Otis had built a hoist for the Yonkers Bedstead Manufacturing Company, where he was employed as Master Mechanic. Although people had been building hoists for at least two thousand years before that, their hoists had the serious fault of falling to the bottom should the lifting cable break. But Mr. Otis invented something that no one had ever seen before. He built a hoist equipped with an automatic safety device to prevent the car from falling.

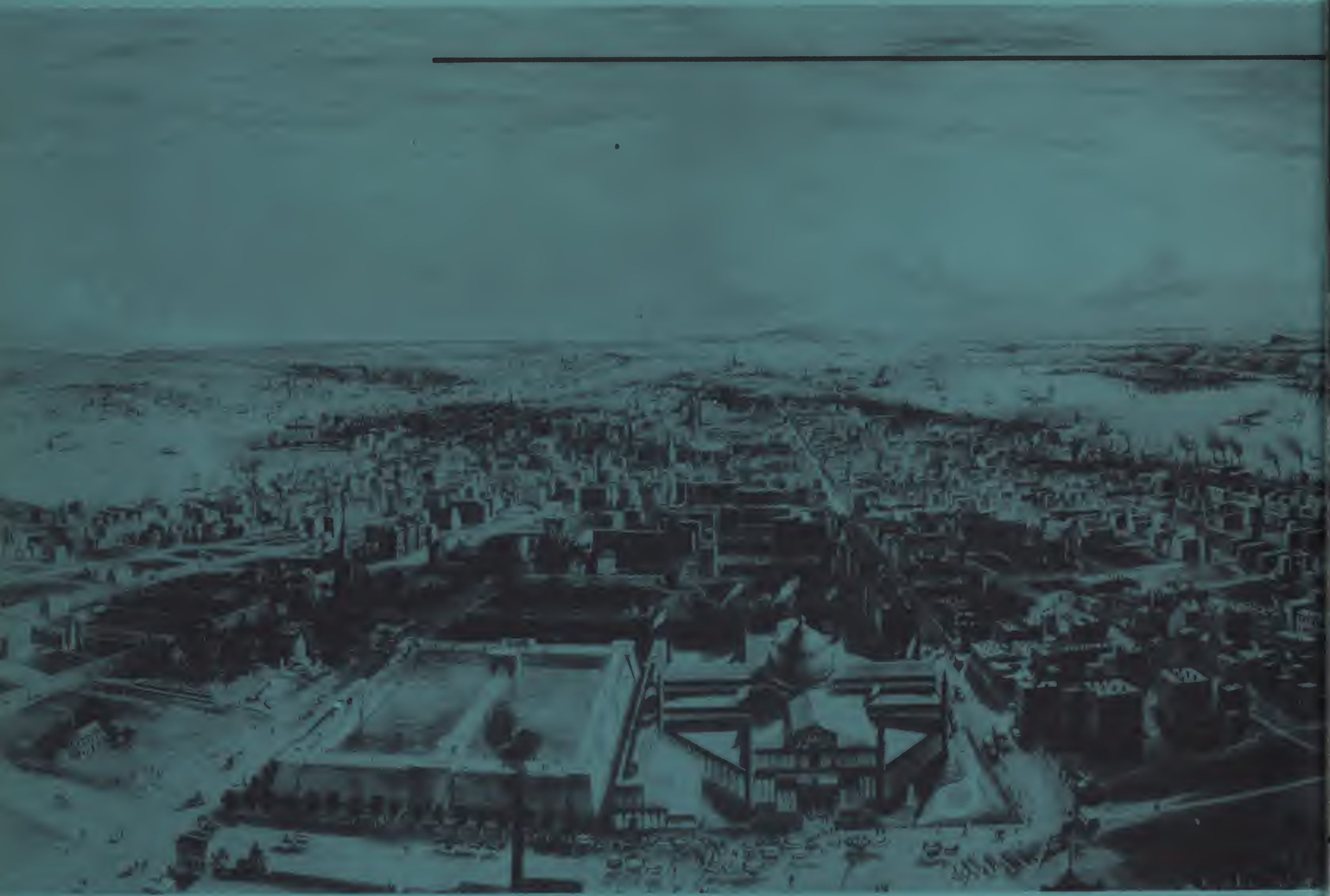
Totally unimpressed with the importance of his invention, Mr. Otis was preparing to join the gold rush to California when he received an unsolicited order for the installation of two of his "safety hoisters" in New York City. So on September 20, 1853, Elisha Otis opened his own shop to build these elevators, and thus founded the elevator industry.

No orders for elevators were received in the first few months of 1854, so in May of that year Mr. Otis decided to demonstrate his safety device at the Crystal Palace exposition in New York. He had himself hoisted to the ceiling on one of these elevators and then ordered the rope cut. This startled many of the spectators, but only resulted in $2,975 in sales in 1854, and $5,605 in 1855. During 1856, 27 elevators were sold, totaling $13,488.



First public demonstration of the elevator, 1854.

272572



NEW YORK *in 1854, looking south from Forty-second Street. At this time there were only three elevators in the entire city and buildings were limited in height to about four floors. It was in the Crystal Palace, foreground, that Elisha Graves Otis demonstrated his elevator safety device. "We allude to an elevator," said the Daily Tribune of May 30, 1854, "or machine for hoisting goods, which attracts attention both by its prominent position and the apparent daring of the inventor, who, as he rides up and down upon the platform occasionally cuts the rope by which it is supported."*

Crystal Palace, New York, 1854.

ALL of these early elevators were freight machines. Then, on March 23, 1857, Otis installed the world's first passenger elevator in the store of E. V. Haughwout & Co. in New York. It was driven by belts from line shafting, had a speed of 40 feet per minute, and cost $300. Total sales for the first five years of business amounted to $33,341, or less than the value of one office-building elevator today.

Elisha Graves Otis died on April 8, 1861. The elevator industry, employing eight or ten men, was carried on by his sons, Charles and Norton.

Lean years followed during the Civil War period. "If we could get more hands we could go ahead," said Charles Otis, "But it requires money and a good deal more than we have got." But in 1866 he wrote, "The panic among business men seems to be over and we hear less about the cholera. There is now beginning to be some inquiry about hoisting machinery. Money matters are easier, think we can get along pretty well now."

The first passenger elevator was installed on March 23, 1857, in the store of E. V. Haughwout & Co., New York.

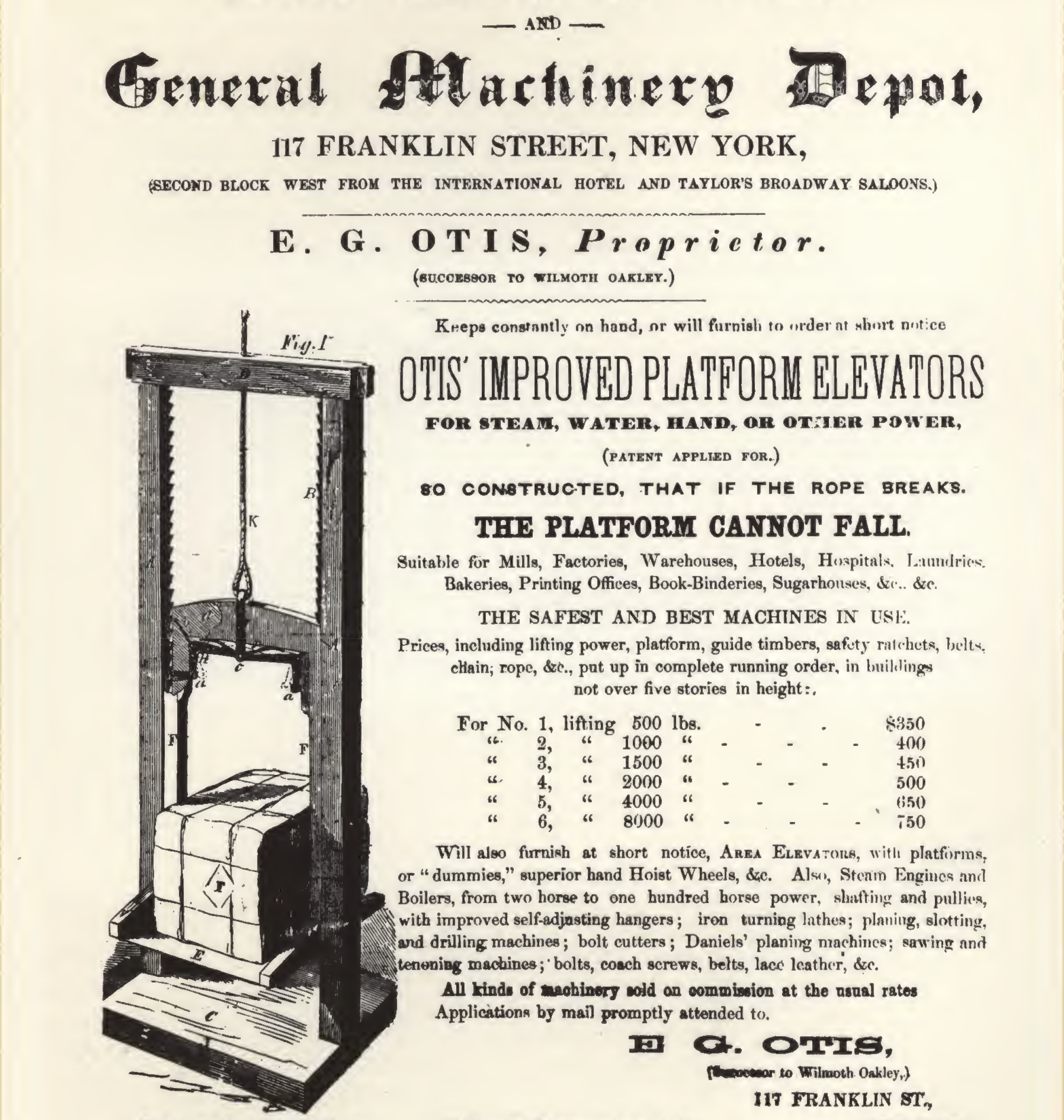


Fig. 1
B
K
A
c
a
F
F
E
C

UNION ELEVATOR WORKS

— AND —

General Machinery Depot,

117 FRANKLIN STREET, NEW YORK,

(SECOND BLOCK WEST FROM THE INTERNATIONAL HOTEL AND TAYLOR'S BROADWAY SALOONS.)

E. G. OTIS, *Proprietor.*

(SUCCESSOR TO WILMOTH OAKLEY.)

Keeps constantly on hand, or will furnish to order at short notice

OTIS' IMPROVED PLATFORM ELEVATORS

FOR STEAM, WATER, HAND, OR OTHER POWER,

(PATENT APPLIED FOR.)

SO CONSTRUCTED, THAT IF THE ROPE BREAKS.

THE PLATFORM CANNOT FALL.

Suitable for Mills, Factories, Warehouses, Hotels, Hospitals, Laundries, Bakeries, Printing Offices, Book-Binderies, Sugarhouses, &c., &c.

THE SAFEST AND BEST MACHINES IN USE.

Prices, including lifting power, platform, guide timbers, safety ratchets, belts, chain, rope, &c., put up in complete running order, in buildings not over five stories in height:.

For No. 1,	lifting	500	lbs.	$350
" 2,	"	1000	"	400
" 3,	"	1500	"	450
" 4,	"	2000	"	500
" 5,	"	4000	"	650
" 6,	"	8000	"	750

Will also furnish at short notice, AREA ELEVATORS, with platforms, or "dummies," superior hand Hoist Wheels, &c. Also, Steam Engines and Boilers, from two horse to one hundred horse power, shafting and pullies, with improved self-adjusting hangers; iron turning lathes; planing, slotting, and drilling machines; bolt cutters; Daniels' planing machines; sawing and tenoning machines; bolts, coach screws, belts, lace leather, &c.

All kinds of machinery sold on commission at the usual rates

Applications by mail promptly attended to.

E. G. OTIS,
(Successor to Wilmoth Oakley,)
117 FRANKLIN ST.,
NEW YORK

Explanation of engraving on the 3d page.

Certificates and References on the next page.

Earliest known Otis advertisement, a leaflet printed in 1855.

Original Otis factory at Yonkers, N. Y., 1853.

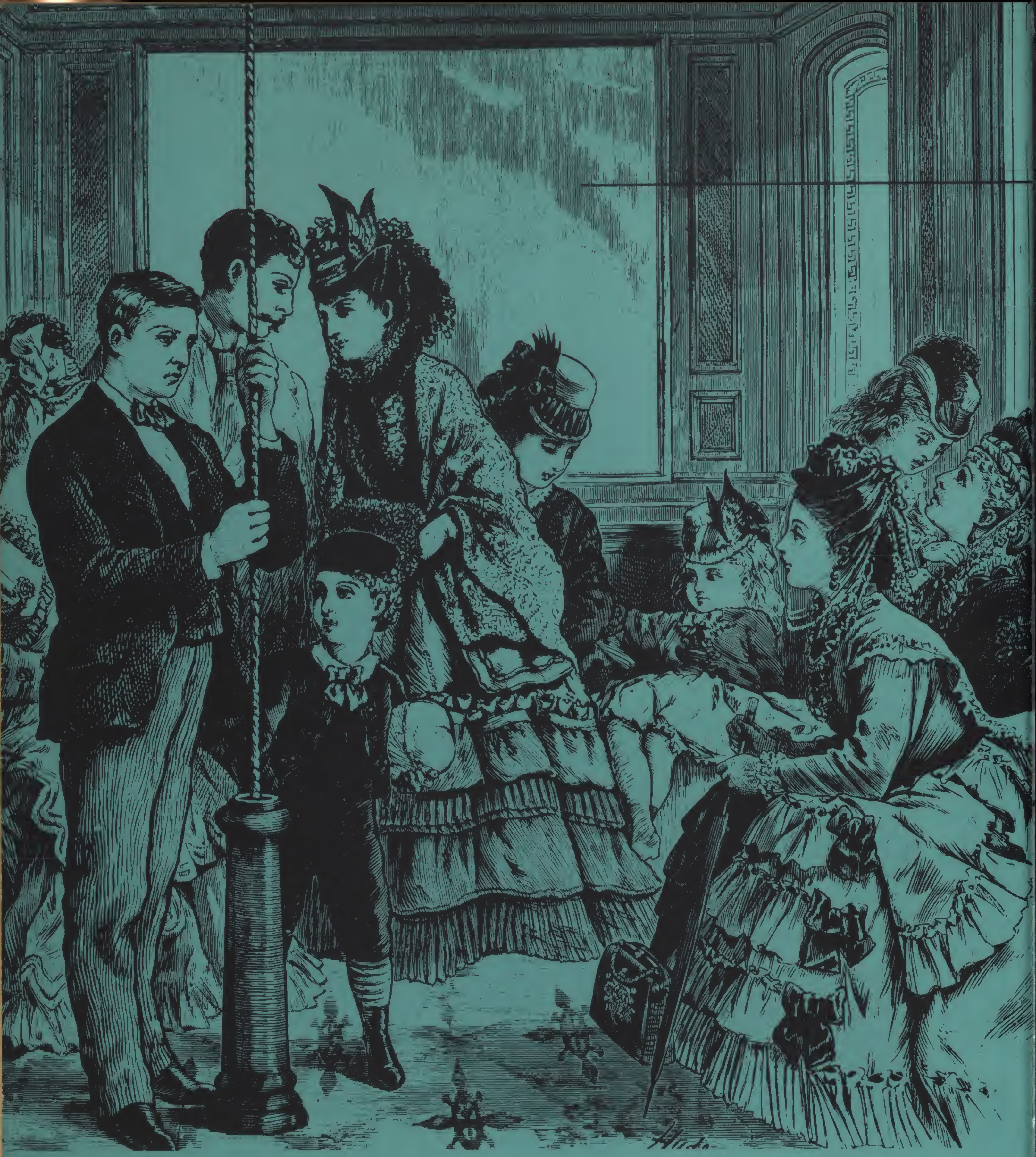
THE firm of Otis Brothers & Co. was incorporated on November 8, 1867, with a capitalization of $225,000. A year later the first factory building on the site of the present Yonkers Works was completed at a cost of $13,000.

By 1868 Otis Brothers had developed a steam passenger elevator with an elaborate car and half a dozen safety devices in addition to the original invention. Suddenly architects and builders realized that elevators could make the upper floors of a building the most valuable, instead of just so much waste space. "They act about elevators as though they were some new discovery that had just come out," wrote Norton Otis rather plaintively.

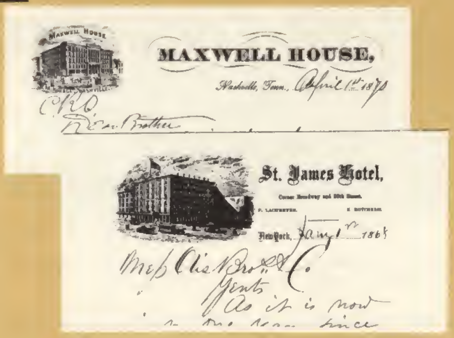
In New York, San Francisco, Chicago, Boston and other cities, the downtown office buildings had been little more than private houses on a larger scale. Now began the work of replacing them with five or even six-story "elevator buildings."

OTIS BROS & CO
OTIS' PATENT SAFETY HOISTING MACHINERY.
OFFICE

First factory building on site of present Yonkers Works, completed in 1868.



Steam passenger elevator in
Lord & Taylor's store,
New York, 1870.



MAXWELL HOUSE,

Nashville, Tenn., April 1st 187

C. R. O.

Dear Brother

St. James Hotel,

New York, Jany 1st 186

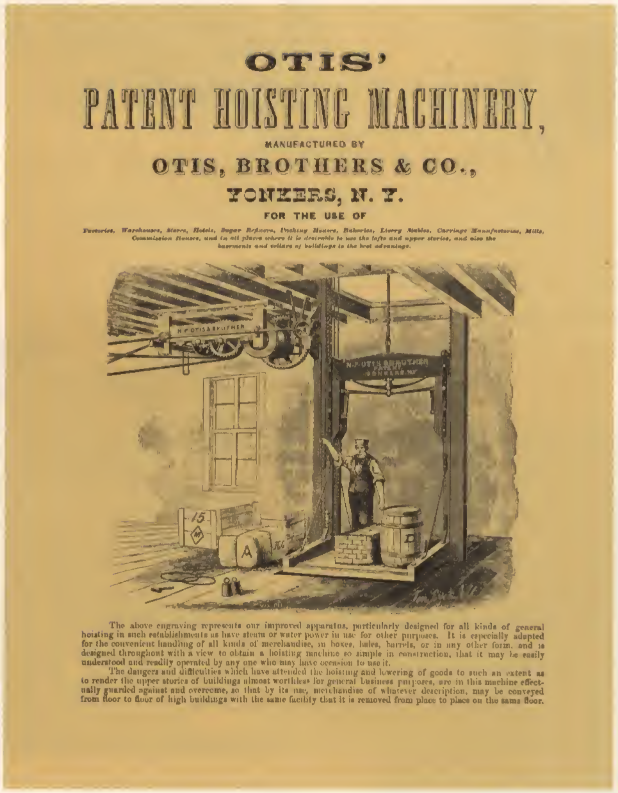
Mess Otis Bro & Co.

Gents

As it is now

Hotels were the most enthusiastic users of early passenger elevators.

But, at first, hotels were the most enthusiastic users of Otis steam passenger elevators. They recognized that the upper floor could be "the most desirable in the house, whence the guest makes the transit in half a minute of repose and quiet, and, arriving there, enjoys a purity and coolness of atmosphere and an exemption from noise, dust and exhalations." Nearly every leading New York hotel installed an Otis elevator, as did the Galt House, Louisville; the Occidental Hotel, San Francisco; the Monongahela House, Pittsburgh; the Maxwell House, Nashville; the St. Charles Hotel, New Orleans; and the Congress Hotel, Saratoga Springs—where Mr. Hathorne, the owner, "is enthusiastic over the results of putting in the machine and says he would not take $50,000 for it. Van Derbilt and all the big guns of New York pronounce it the best thing in the world."



OTIS'

PATENT HOISTING MACHINERY,

MANUFACTURED BY

OTIS, BROTHERS & CO.,

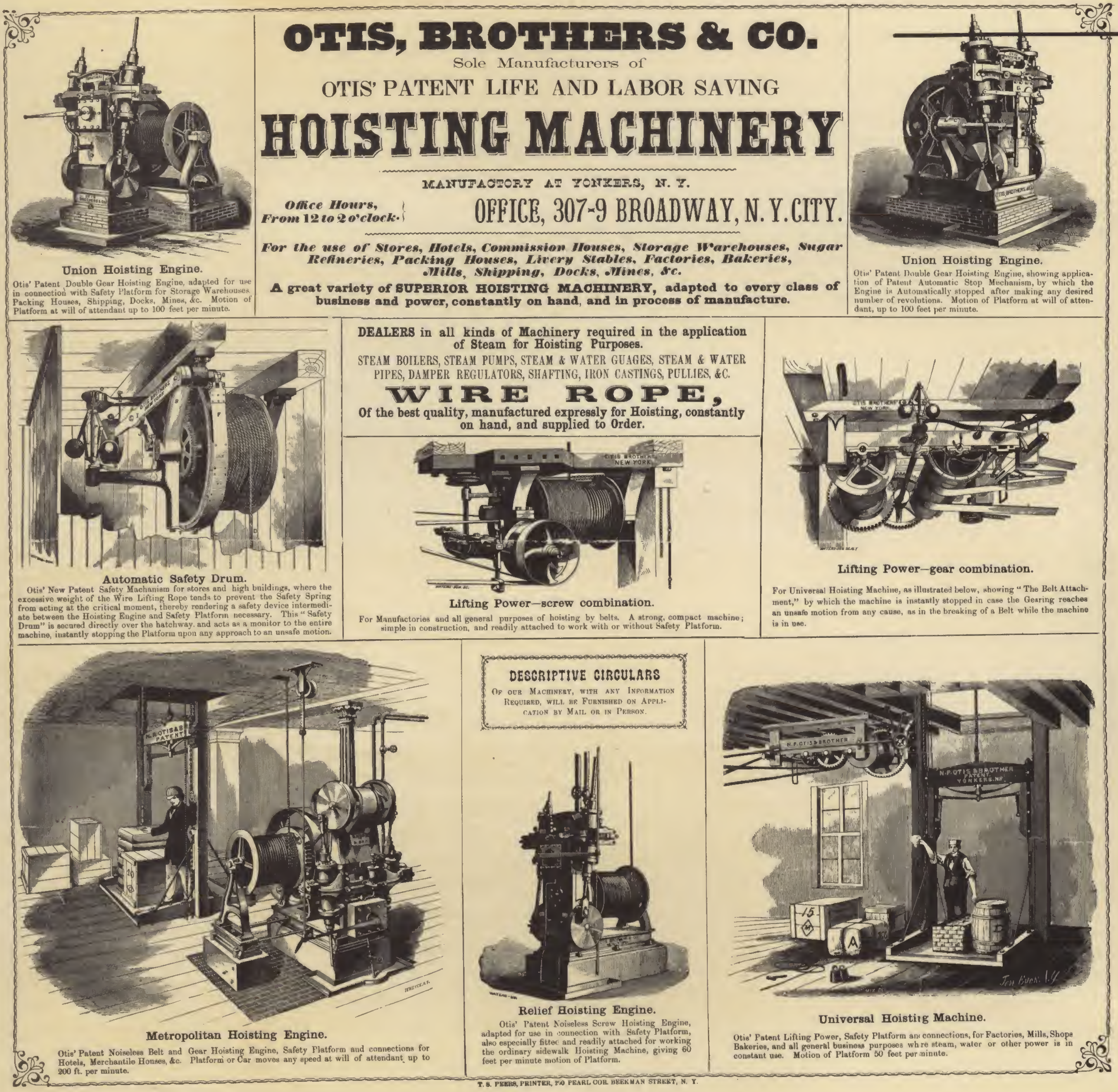
YONKERS, N. Y.

FOR THE USE OF

Factories, Warehouses, Stores, Hotels, Sugar Refiners, Packing Houses, Bakeries, Livery Stables, Carriage Manufactories, Mills, Commission Houses, and in all places where it is desirable to use the lofts and upper stories, and also the basements and cellars of buildings to the best advantage.

The above engraving represents our improved apparatus, particularly designed for all kinds of general hoisting in such establishments as have steam or water power in use for other purposes. It is especially adapted for the convenient handling of all kinds of merchandise, in boxes, bales, barrels, or in any other form, and is designed throughout with a view to obtain a hoisting machine so simple in construction, that it may be easily understood and readily operated by any one who may have occasion to use it.

The dangers and difficulties which have attended the hoisting and lowering of goods to such an extent as to render the upper stories of buildings almost worthless for general business purposes, are in this machine effectually guarded against and overcome, so that by its use, merchandise of whatever description, may be conveyed from floor to floor of high buildings with the same facility that it is removed from place to place on the same floor.


OTIS BROTHERS NEW YORK
N. P. OTIS & BROTHER PATENT YONKERS, N.Y.

OTIS, BROTHERS & CO.

Sole Manufacturers of

OTIS' PATENT LIFE AND LABOR SAVING

HOISTING MACHINERY

MANUFACTORY AT YONKERS, N. Y.

Office Hours, From 12 to 2 o'clock.

OFFICE, 307-9 BROADWAY, N. Y. CITY.

For the use of Stores, Hotels, Commission Houses, Storage Warehouses, Sugar Refineries, Packing Houses, Livery Stables, Factories, Bakeries, Mills, Shipping, Docks, Mines, &c.

A great variety of SUPERIOR HOISTING MACHINERY, adapted to every class of business and power, constantly on hand, and in process of manufacture.

Union Hoisting Engine.

Otis' Patent Double Gear Hoisting Engine, adapted for use in connection with Safety Platform for Storage Warehouses, Packing Houses, Shipping, Docks, Mines, &c. Motion of Platform at will of attendant up to 100 feet per minute.

Union Hoisting Engine.

Otis' Patent Double Gear Hoisting Engine, showing application of Patent Automatic Stop Mechanism, by which the Engine is Automatically stopped after making any desired number of revolutions. Motion of Platform at will of attendant, up to 100 feet per minute.

DEALERS in all kinds of Machinery required in the application of Steam for Hoisting Purposes.

STEAM BOILERS, STEAM PUMPS, STEAM & WATER GUAGES, STEAM & WATER PIPES, DAMPER REGULATORS, SHAFTING, IRON CASTINGS, PULLIES, &C.

WIRE ROPE,

Of the best quality, manufactured expressly for Hoisting, constantly on hand, and supplied to Order.

Automatic Safety Drum.

Otis' New Patent Safety Machanism for stores and high buildings, where the excessive weight of the Wire Lifting Rope tends to prevent the Safety Spring from acting at the critical moment, thereby rendering a safety device intermediate between the Hoisting Engine and Safety Platform necessary. This "Safety Drum" is secured directly over the hatchway. and acts as a monitor to the entire machine, instantly stopping the Platform upon any approach to an unsafe motion.

Lifting Power—screw combination.

For Manufactories and all general purposes of hoisting by belts. A strong, compact machine; simple in construction, and readily attached to work with or without Safety Platform.

Lifting Power—gear combination.

For Universal Hoisting Machine, as illustrated below, showing "The Belt Attachment," by which the machine is instantly stopped in case the Gearing reaches an unsafe motion from any cause, as in the breaking of a Belt while the machine is in use.

DESCRIPTIVE CIRCULARS

OF OUR MACHINERY, WITH ANY INFORMATION REQUIRED, WILL BE FURNISHED ON APPLICATION BY MAIL OR IN PERSON.

Metropolitan Hoisting Engine.

Otis' Patent Noiseless Belt and Gear Hoisting Engine, Safety Platform and connections for Hotels, Merchantile Houses, &c. Platform or Car moves any speed at will of attendant up to 200 ft. per minute.

Relief Hoisting Engine.

Otis' Patent Noiseless Screw Hoisting Engine, adapted for use in connection with Safety Platform, also especially fitted and readily attached for working the ordinary sidewalk Hoisting Machine, giving 60 feet per minute motion of Platform.

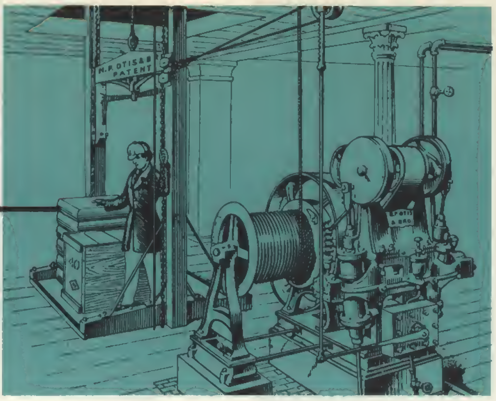
Universal Hoisting Machine.

Otis' Patent Lifting Power, Safety Platform and connections, for Factories, Mills, Shops Bakeries, and all general business purposes where steam, water or other power is in constant use. Motion of Platform 50 feet per minute.

T. S. PEERS, PRINTER, 70 PEARL COR. BEEKMAN STREET, N. Y.

Otis Brothers advertisement shows types of elevator equipment in use in 1868.

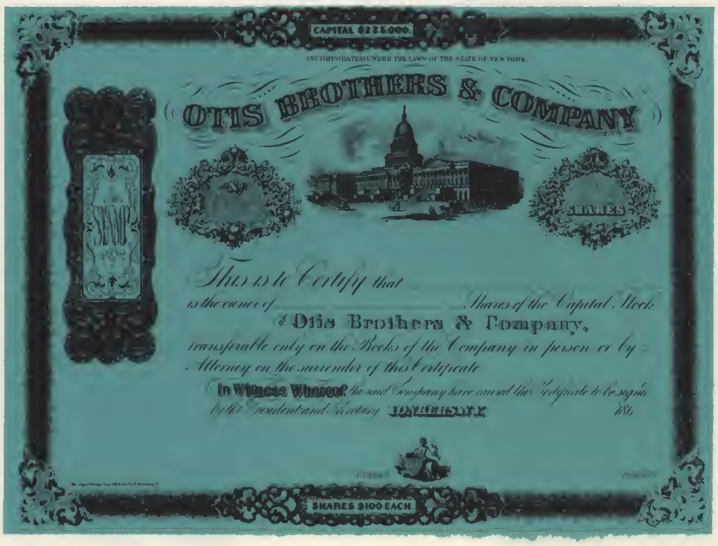
First steam elevator, patented by Otis in 1861.



In 1870, sales were $208,913 and total sales since 1853 crossed the million dollar mark. By the end of 1872, after the first 20 years of business, 2,000 Otis elevators were in service. At the factory, "The work goes on from Monday morning to Saturday night, with two entire sets of hands, working day and night."

Early in 1873, Otis Brothers & Co. declared their first dividend. Then came the depression of '73. On September 20th the Stock Market closed and half the builders of the country went out of business. In 1874 the capital stock of Otis Brothers & Co. was reduced from $225,000 to $120,000 and the new foundry at Yonkers which had been built for $8,000 was rented to Beal & Walworth for $100 a month.

On September 17, 1877, Charles Otis reported to the stockholders: "The past four years cover a period of business depression unprecedented in the history of this country. Although we have been free from war, we have been repeatedly threatened by unheard of civil and political complications . . . the effect of which has been most destructive to the business and property interests of the whole country . . . Without any exaggeration things in general may be said to have been going from very bad to worse and worse."



CAPITAL $225,000.

INCORPORATED UNDER THE LAWS OF THE STATE OF NEW YORK.

OTIS BROTHERS & COMPANY

STAMP

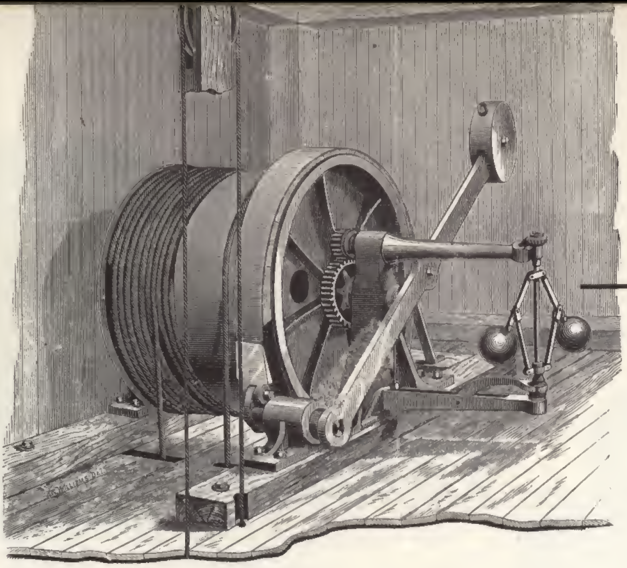
SHARES

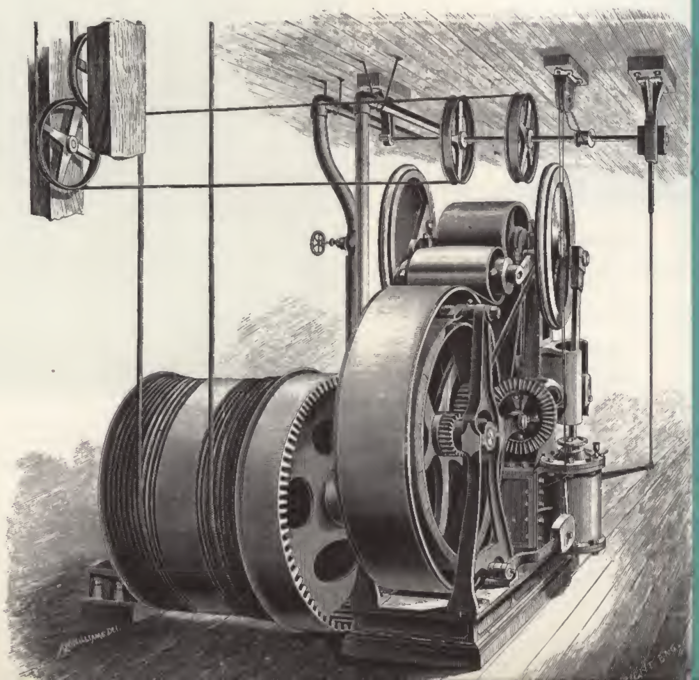
This is to Certify that
is the owner of Shares of the Capital Stock
of Otis Brothers & Company,
transferable only on the Books of the Company in person or by Attorney on the surrender of this Certificate

In Witness Whereof the said Company have caused this Certificate to be signed by the President and Secretary YONKERS N.Y. 186

SHARES $100 EACH.

Certificate of Otis Brothers & Co., incorporated in 1867.





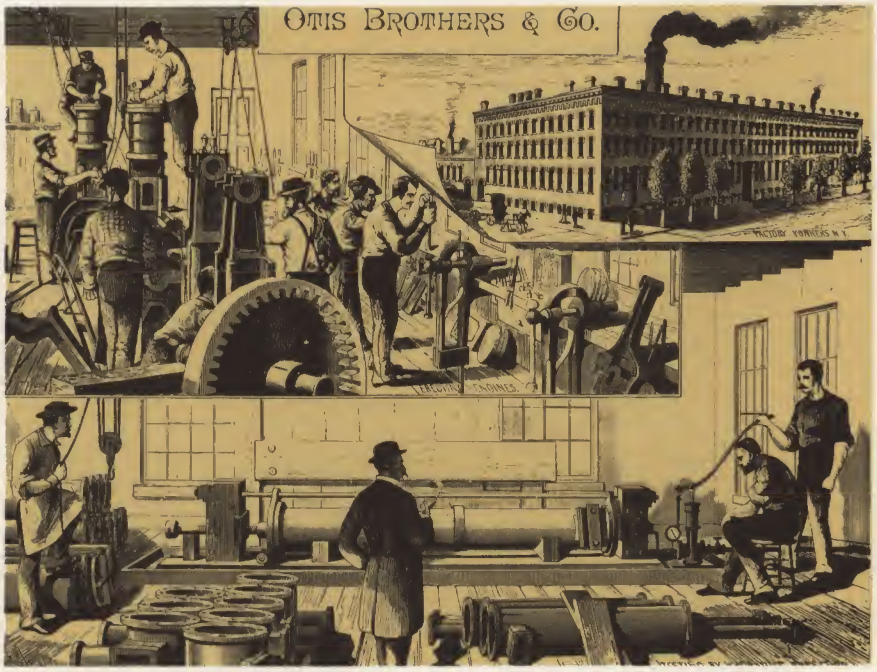
The Otis steam elevator of 1876 had half a dozen new safety devices, cost as much as $15,000.

PASSENGER ELEVATORS OTIS BROTHERS & CO. MANUFACTURERS
FOR HOTELS STORES & OFFICE BUILDINGS PATENT SAFETY HOISTING MACHINERY OF ALL KINDS
YONKERS N.Y.

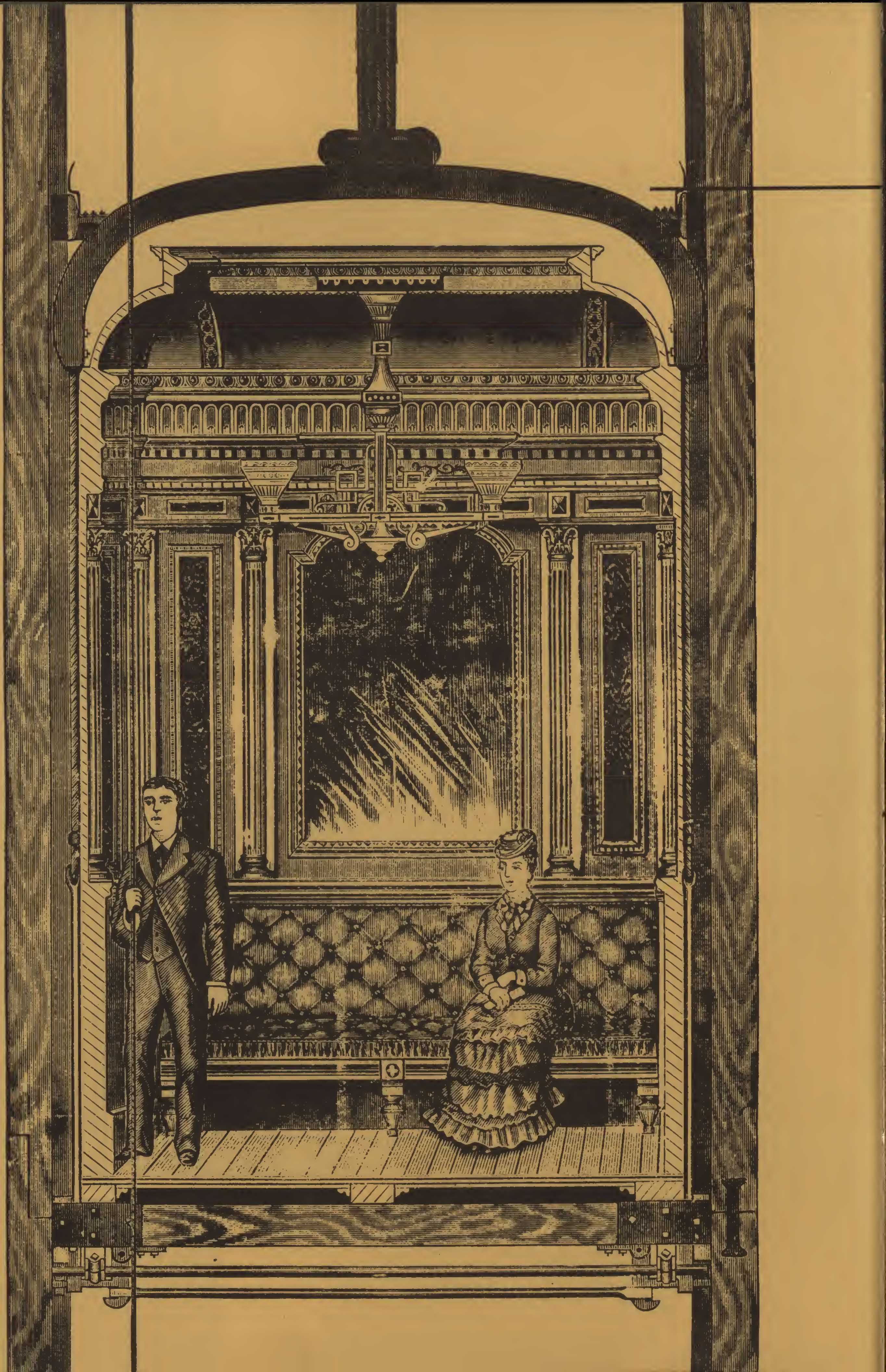
By 1880 the Yonkers Works had been enlarged three times.

BUT the slump in building construction ended in 1878, and Otis was ready for the business revival with two important developments: a hydraulic elevator that provided higher speeds and was more economical to install and operate than the steam machine, and a governor-operated safety device to bring the high-speed car to a gradual stop in case of emergency. Thus began building construction of a new type influenced by improved passenger elevators.

Up to this time most people thought that the financial center of New York must inevitably move from Wall Street. There was a shortage of office space downtown, and more than once there was serious talk of moving the Stock Exchange. But higher elevator speeds and taller buildings made this move quite unnecessary. In April, 1878, the first hydraulic elevator was installed at 155 Broadway, New York. Later in the year, another was installed in the Stock Exchange.


OTIS BROTHERS & CO.
FACTORY YONKERS N.Y.
FACTORY ENGINES

"Engine Construction Room and Apparatus for Testing Hydraulic Cylinders", about 1880.



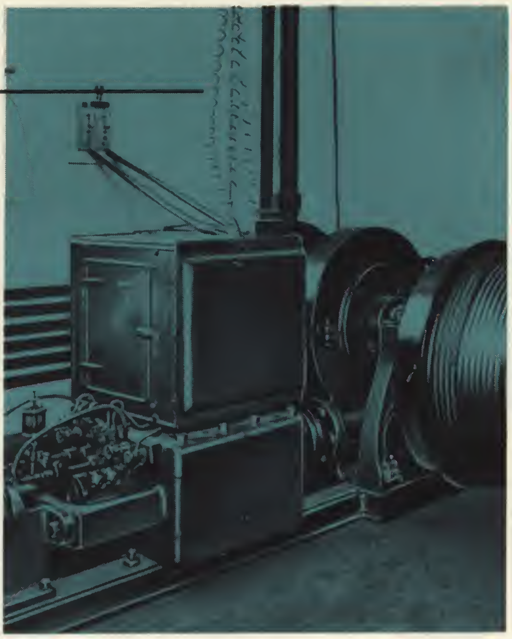
The first elevators were installed in the White House by Otis in 1881. Five new Otis units recently have been completed.

In September, 1879, four Otis hydraulic elevators were ordered for the Boreel Building, New York. This was the first installation of a *group* of higher-speed elevators for a commercial building, and now it was possible to build upward until the limit of brick bearing walls was reached. February, 1883, saw the largest elevator contract to date, $69,800, awarded to Otis for nine elevators in the Produce Exchange, New York. These elevators are still in service, exactly as originally installed.

THE capital stock of Otis Brothers & Co. had been increased from $120,000 to $500,000 on June 30, 1882, and again raised to $600,000 on July 23, 1888. Otis Brothers sales were $1,107,257 in 1889, the first million-dollar-year, and total sales since the business started were $10,599,911. There now were Otis offices in eleven cities of the United States, as well as offices in London and Paris.

Meanwhile the volume of business had outgrown the capacity of the Yonkers Works, and on June 23, 1887, Charles Otis said to the stockholders, "We are, by position and reputation, age, knowledge, ability, capacity, resources and in every way the giant of the business, and if we fail to use our strength and advantages . . . we have ourselves only to blame. We must rise and go forward." So $153,000 was spent for property, buildings and new tools at Yonkers, and Mr. Otis was pleased to announce that, "The new factory, in capacity for turning out a good quality of work at a low rate of cost will be second to no concern in the world."

The "new factory" at Yonkers, 1888.



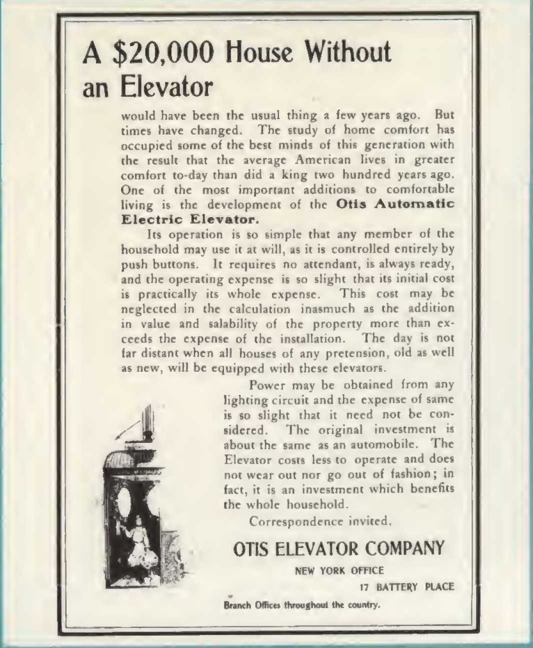
The first successful electric elevator, installed in the Demarest Building, New York, in 1889.

In May, 1889, nine Otis hydraulic elevators were ordered for the World Building (Pulitzer Building) in New York. This was the tallest office building of the time, and its famous gilded dome, long since dwarfed, dominated the downtown area. Since then every "tallest building" ever built in the United States has been equipped with Otis elevators.

It did not seem so important at the time, but the first successful, direct-connected electric elevators were delivered to the Demarest Building, New York, in December, 1889. The machines had no name, just "R. Smith's electric screw-machines" on the factory orders, but these elevators delivered faithful service until the building was torn down in 1920.

Charles Otis retired in 1890, reminding the Board of Trustees that "The elevator business is probably one of the most variable and uncertain, in respect to the results of any particular period, of any business in existence at the present day." The Board adopted, by unanimous vote: "RESOLVED: That in view of the retirement of Mr. Charles R. Otis from active participation in the business affairs of this Company, on account of ill health, we desire to testify our high appreciation of his long and useful career as an inventor and builder of elevators, and the important part he has borne in making the elevators of this Company the standard for safety, efficiency and durability throughout the world." Mr. Norton P. Otis was elected President of Otis Brothers & Co.

Elevator car of the 1880's, valued at $1,000.



A $20,000 House Without an Elevator

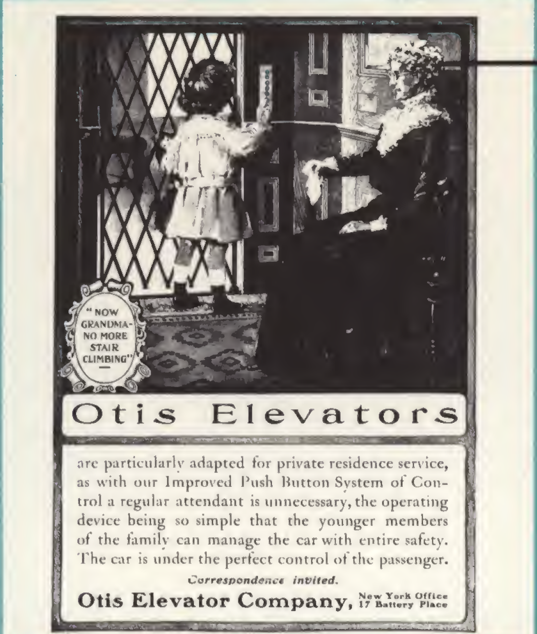
would have been the usual thing a few years ago. But times have changed. The study of home comfort has occupied some of the best minds of this generation with the result that the average American lives in greater comfort to-day than did a king two hundred years ago. One of the most important additions to comfortable living is the development of the **Otis Automatic Electric Elevator.**

Its operation is so simple that any member of the household may use it at will, as it is controlled entirely by push buttons. It requires no attendant, is always ready, and the operating expense is so slight that its initial cost is practically its whole expense. This cost may be neglected in the calculation inasmuch as the addition in value and salability of the property more than exceeds the expense of the installation. The day is not far distant when all houses of any pretension, old as well as new, will be equipped with these elevators.

Power may be obtained from any lighting circuit and the expense of same is so slight that it need not be considered. The original investment is about the same as an automobile. The Elevator costs less to operate and does not wear out nor go out of fashion; in fact, it is an investment which benefits the whole household.

Correspondence invited.

OTIS ELEVATOR COMPANY
NEW YORK OFFICE
17 BATTERY PLACE
Branch Offices throughout the country.

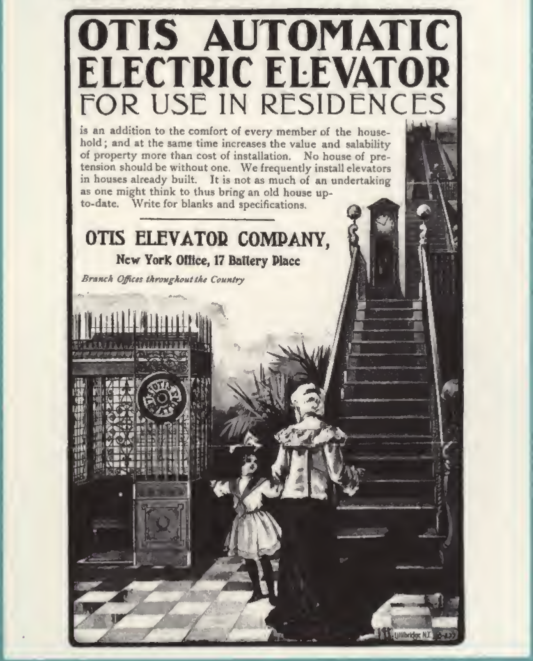

"NOW GRANDMA—NO MORE STAIR CLIMBING"

Otis Elevators

are particularly adapted for private residence service, as with our Improved Push Button System of Control a regular attendant is unnecessary, the operating device being so simple that the younger members of the family can manage the car with entire safety. The car is under the perfect control of the passenger.

Correspondence invited.

Otis Elevator Company, New York Office
17 Battery Place

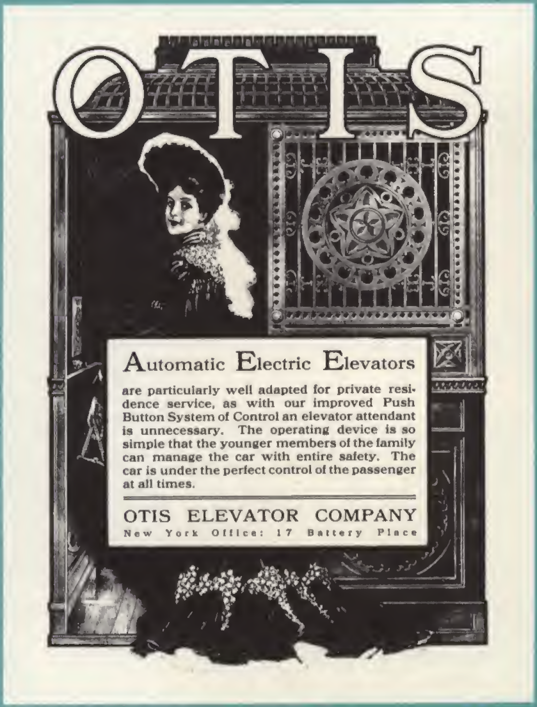


ELEVATORS 91

OTIS AUTOMATIC ELECTRIC ELEVATOR FOR USE IN RESIDENCES

is an addition to the comfort of every member of the household; and at the same time increases the value and salability of property more than cost of installation. No house of pretension should be without one. We frequently install elevators in houses already built. It is not as much of an undertaking as one might think to thus bring an old house up-to-date. Write for blanks and specifications.

OTIS ELEVATOR COMPANY,
New York Office, 17 Battery Place
Branch Offices throughout the Country



OTIS

Automatic Electric Elevators

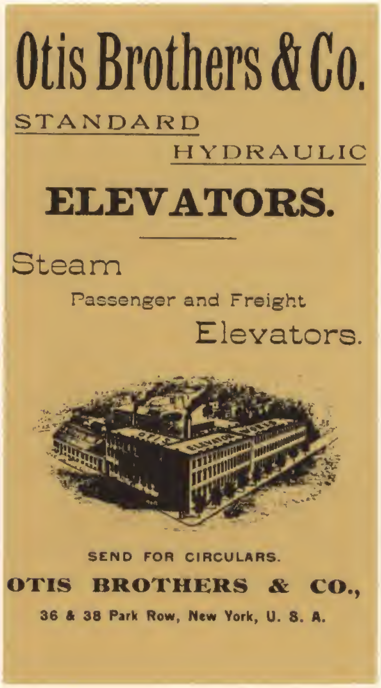
are particularly well adapted for private residence service, as with our improved Push Button System of Control an elevator attendant is unnecessary. The operating device is so simple that the younger members of the family can manage the car with entire safety. The car is under the perfect control of the passenger at all times.

OTIS ELEVATOR COMPANY
New York Office: 17 Battery Place

The first push-button elevators, in 1894, won immediate acceptance for residences.

THE "gay nineties" were busy years for Otis Brothers. With the introduction of steel frame construction in Chicago and later in New York, buildings soared upward and the "skyscraper" became a reality. Trinity Church, which had been the tallest structure in New York since 1841, finally was topped by the Manhattan Life Insurance Building in 1893. By 1910 the spire no longer could be identified in photographs of the skyline of the city.

There never was a question about the ability of elevators to serve the new skyscrapers. The standard Otis hydraulic elevators of the period were capable of higher speeds than an elevator operator could control, and car speed was held arbitrarily to 600 or 700 feet per minute. This speed of about eight miles an hour, incidentally, was the maximum legal rate for bicycles on the streets of the city at the time.



Otis Brothers & Co.

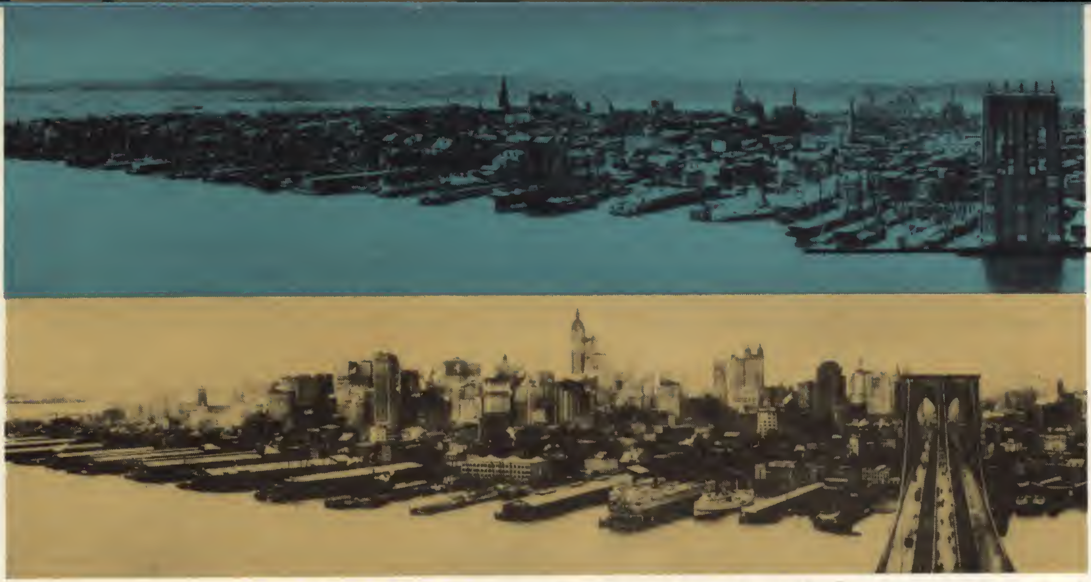
STANDARD
HYDRAULIC

ELEVATORS.

Steam
Passenger and Freight
Elevators.

SEND FOR CIRCULARS.
OTIS BROTHERS & CO.,
36 & 38 Park Row, New York, U. S. A.

Meanwhile, the new electric elevators had won almost immediate acceptance, particularly for residences. Because the manufacture of electric motors and controls was a highly specialized business in those days, a separate company named the Otis Electric Company, was organized for this purpose in 1892. This company was jointly owned by Otis Brothers & Co. and by the Thomson-Houston Electric Company, Edison General Electric Company and General Electric Company, and occupied a part of what is now Building No. 3 of the Yonkers Works. The Otis Electric Company later became a part of the present Otis Elevator Company.



In 1876 the spire of Trinity Church was the tallest structure in New York. By 1908 it no longer was part of the skyline of the city.

More and more new buildings rose to greater heights and the volume of overseas business steadily increased—the records show shipments to 31 different countries in the early 1890's. The factory was turning out four elevators a day and 500 people were employed. There also was "a force of about 200 constantly engaged in setting up elevators in New York and other cities." Yearly sales averaged about $1,200,000 through "the nineties".

IT was on June 10, 1898, at the Auditorium Hotel in Chicago, that Otis and eight other elevator companies first agreed to form one corporation to acquire the assets of all. Negotiations for the new company had been in progress for about ten years, guided mainly by W. D. Baldwin, vice-president of Otis Brothers & Co.

So the Otis Elevator Company was incorporated at East Orange, New Jersey, on November 28, 1898, with a capitalization of $11,000,000. The authorized stock was 45,000 shares ($4,500,000) in 6% preferred stock and 65,000 shares ($6,500,000) in common stock. Mr. Norton P. Otis was elected chairman of the board of directors and W. D. Baldwin became the first president of Otis Elevator Company.

It is interesting to note that, from 1853 through 1898, more than $21,000,000 worth of Otis elevators were sold, manufactured and installed. By comparison, during the first three months of 1953 Otis Elevator Company did more business than was done in 46 years by Elisha, Charles and Norton Otis.

THERE had been seven stockholders of Otis Brothers & Co. in 1898. At the time of the first annual meeting of Otis Elevator Company on October 28, 1899, there were 449 stockholders listed on the Company's books, and Otis, like many other firms at the turn of the century, had emerged into the growing class of publicly-owned corporations. Sales for the year 1899 were five million dollars. They were nearly ten million dollars in 1902.

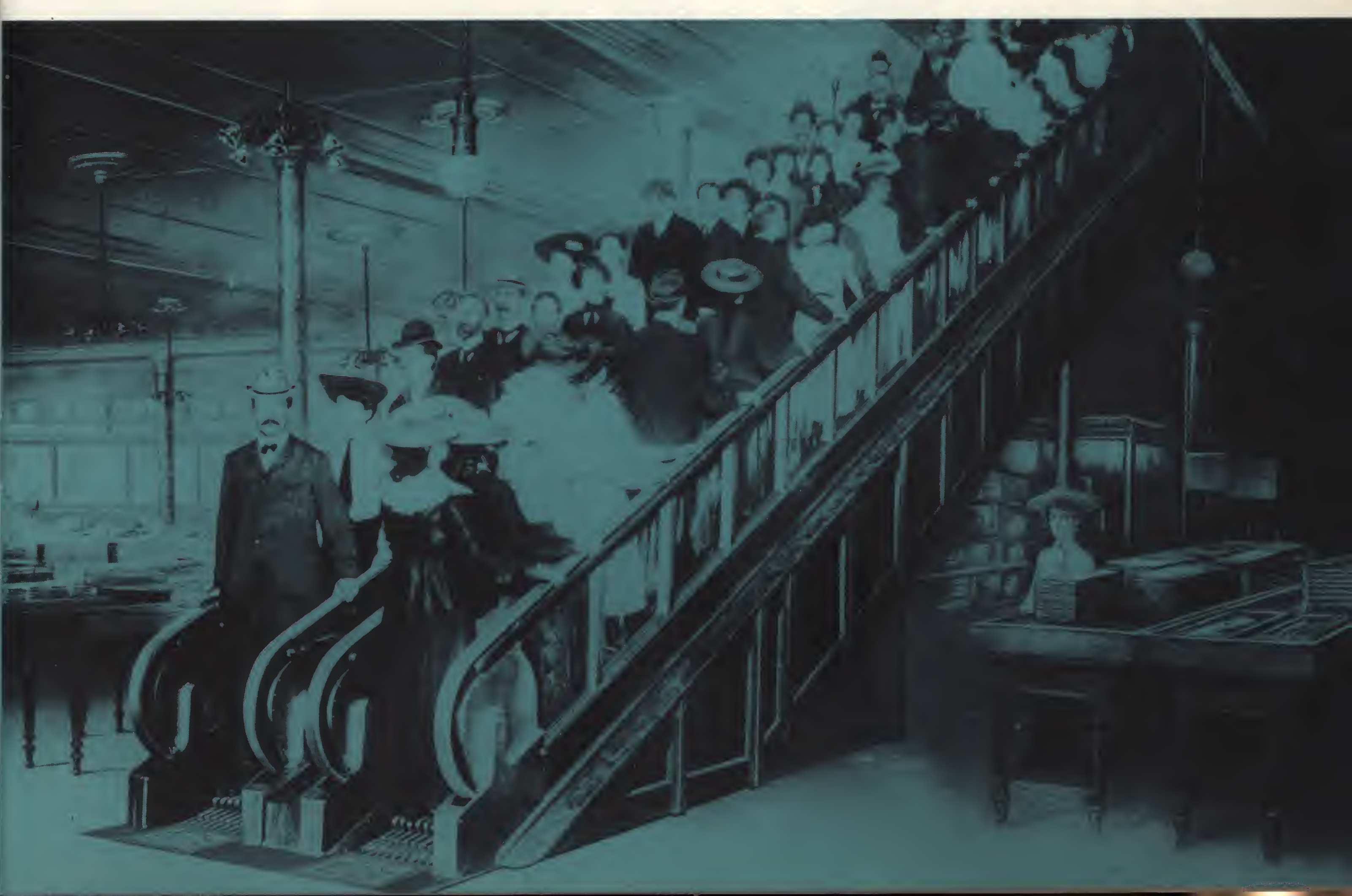
In 1903 the first dividend was declared on the common stock. The Company now has paid dividends on these shares for fifty consecutive years.

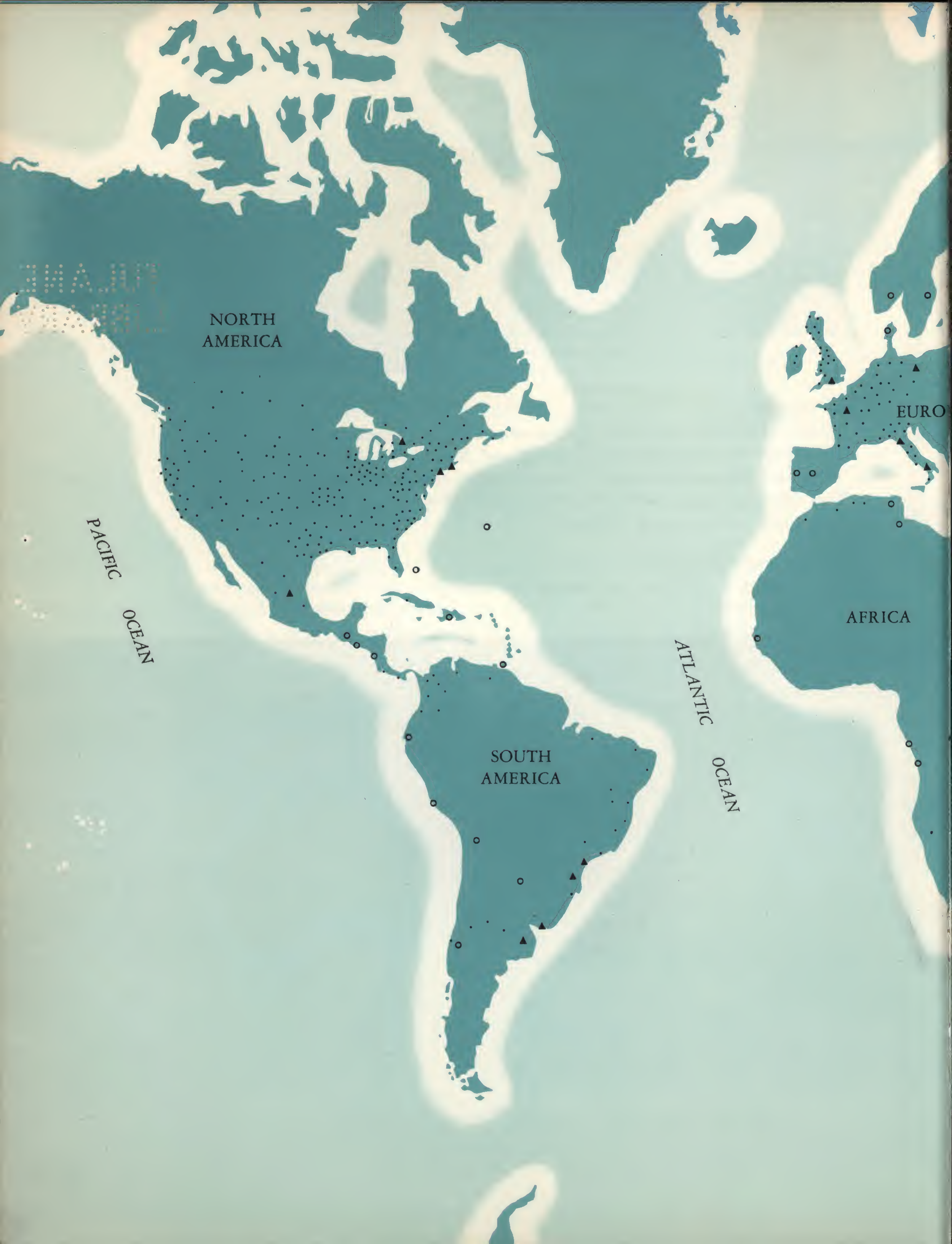
*A corner of the Otis office,
New York, 1899.*

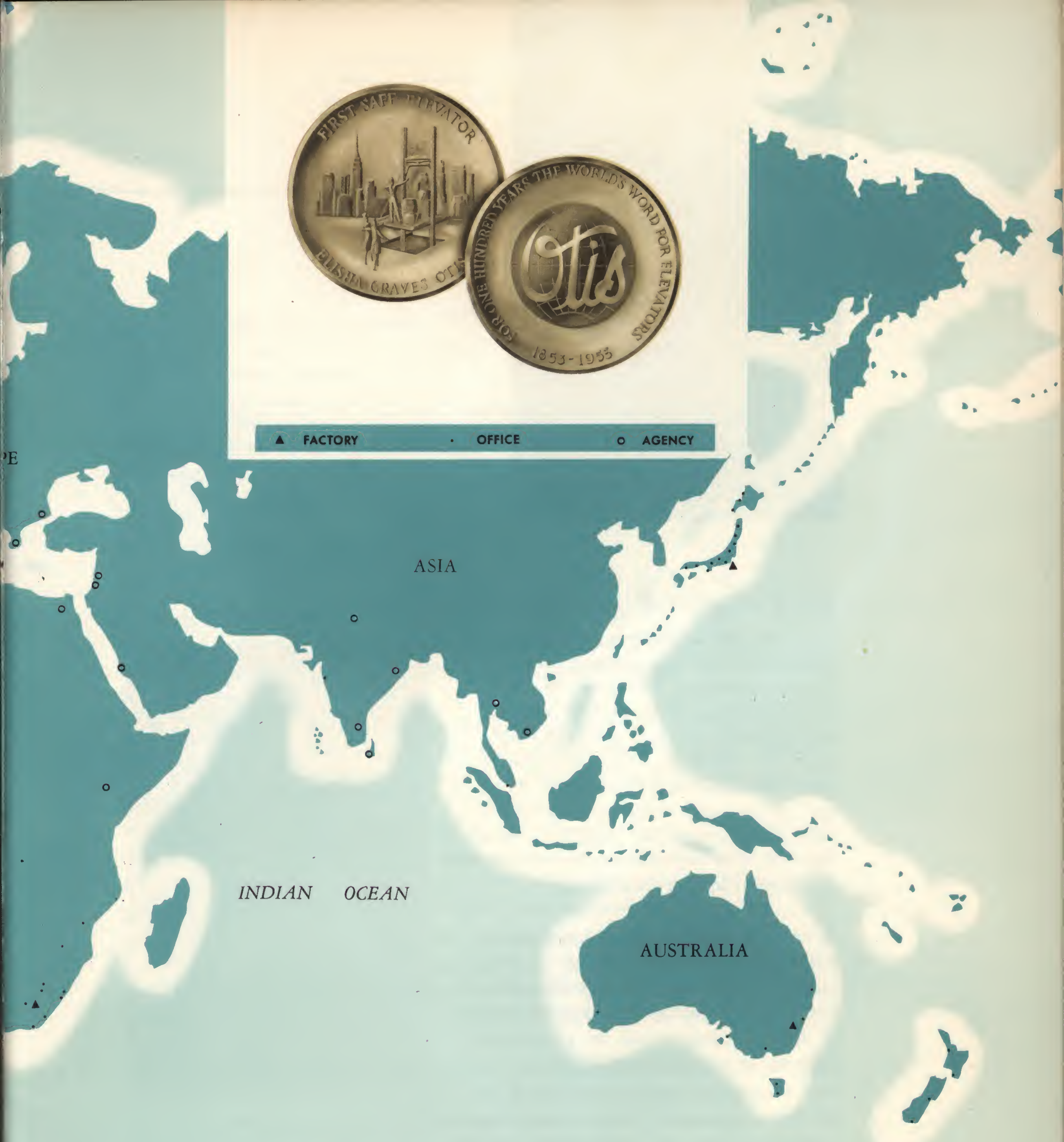
TULANE
LIBRARY

THERE were three significant developments soon after Otis Elevator Company was organized. The year 1900 saw the first *"Escalator"* in public use at the Paris Exposition, where it was awarded a grand prize. The word "escalator," an Otis trade name for fifty years; is now in every-day use, the Company's contribution to the English language.

Escalator, 1903 model, in the R. H. White & Company store, Boston.




NORTH
AMERICA
PACIFIC OCEAN
EURO
AFRICA
ATLANTIC OCEAN
SOUTH
AMERICA



OTIS REPRESENTATION THROUGHOUT THE WORLD

The 20-story Flatiron Building, a marvel of 1902. The original Otis hydraulic elevators are still in service.

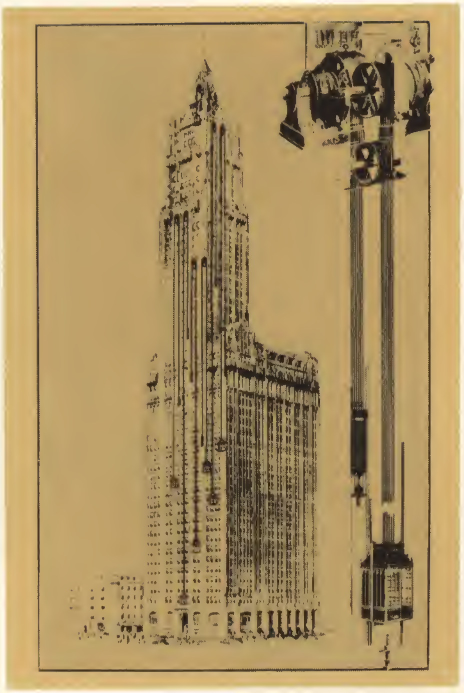
Second, in 1902, the first *direct plunger* elevators were installed for high-rise passenger service. We had been building them for years for freight duty, but now they were used for buildings up to 25 or 30 stories high—which meant that a cylinder had to be sunk an equal distance in the ground.

The plunger elevator no longer is installed for high-rise service, but we still make them for freight service and recently developed an improved plunger-electric unit.

The third and most important development was the *gearless traction* electric machine, first used in 1903. These machines can be used for any rise, and, depending on size, at any desirable speed. So far as we know, not one of these machines has ever worn out. At an age when any other transportation equipment would be relegated to a museum, even the very earliest of these machines is in every-day service.

IT was in a year of depression, 1907, that the total sales of all Otis elevators since 1853 reached $100,000,000. Thus it took the first 55 years to do a dollar volume equal to one year's business at the present rate.

With the exception of the results of the 1907 depression, however, sales increased steadily until 1914. During this



No drawing of a proposed tall building was complete without a diagram showing the elevators. The Woolworth Building has 26 Otis gearless traction machines.

The Sultan Town Car, built by Otis from 1906 to 1910.

time Mr. Baldwin had no problem with his annual letter to stockholders. He merely copied, with minor revisions, the letter of the year before. "Your Directors take pleasure in reporting to you that the year's business has been the largest in the history of your Company. . ." followed by details of expansion of manufacturing facilities.

As an interesting side-line, Otis joined many other manufacturers of this period in the "horseless carriage" business. From 1906 to 1910, the Sultan automobile was produced in an Otis shop in Springfield, Massachusetts. The car sold for about $3,000 and was a sturdy, four-cylinder machine for its day, with the result that many were used for taxicabs. The automobile industry, however, was far afield from the construction industry, and manufacture of the Sultan was discontinued.

Important elevator sales during the building boom of 1907-1912 were contracts for the Singer Building, 612 feet high; the Metropolitan Tower, 700 feet; and the Woolworth Building, 780 feet—each the "tallest in the world", and each equipped with Otis gearless traction elevators.

When the Woolworth Building elevators were modernized in 1947 the original gearless machines, each 35 years old and with at least 250,000 miles of service, were found to warrant being retained for another similar period and to justify being equipped with modern Signal Control operation.

The year 1914 and World War I brought a sharp drop in commercial building construction. The Otis factories took on war work and in 1917 the yearly sales reached $20,000,000 for the first time. By this time the Company had a considerable investment in associated companies in Canada, England, France and Germany.

In 1915 Otis developed Micro-drive, or self-leveling for elevators. First used on U.S. Navy mine-layers, and then in U.S. Army Bases during the war, this invention greatly increased the quality and comfort of elevator service everywhere by providing accurate stops at floor landings.

The Standard Oil Building, New York, was the first to have Signal Control elevators, 1924.

FROM 1921 to 1929, annual sales again increased each year, exceeding $60,000,000 in 1929. A dividend of 50% was declared on the common stock in 1921, followed by a 2 for 1 split-up in 1924, a 10% dividend the same year, 25% in 1927, 15% in 1929, and a 4 for 1 split in 1930. Thus an original share of the common stock of Otis Elevator Company, which doubtless was regarded with no great respect in 1898, became 18.975 shares in the ownership of the Company.

An important factor in the increased sales of Otis elevators had been the development of Signal Control in 1924. This type of operation relieves the operator of all duties except that of pressing buttons and closing the car doors. Thus the speed of an elevator was no longer limited to the ability of a human operator to judge blurred floor numbers and to answer flashing signals. Elevators could make accurate, automatic stops from twice the speed possible with manual operation. Taller buildings than ever before were economically justified. In a period of three years, four successive "world's tallest" buildings were completed in New York: 40 Wall Street, 60 Wall Tower, Chrysler, and Empire State. All have Otis Signal Control elevators, with a total of 58 serving the 102-story Empire State Building.

The Company's operations lag about a year behind general business conditions, and therefore sales and income continued high in 1930. But Charles Otis' prophesy of forty years before was soon to come true. Just to show how "variable and uncertain" the elevator business could be, sales of new elevators dropped 93% in five years. At the depth of the depression in 1933, fewer elevators were sold than at any time since the present Company was organized.

In two years, 1933 and 1934, Otis reported losses of more than four million dollars. Two-thirds of the earned surplus was used up, not to be regained for fourteen years. But the Company came through the depression under its own power, with no outside financial help of any kind.

The Empire State Building has been the world's tallest since 1931. Otis equipment includes 58 Signal Control elevators.

This was due in no small part to an *idea*—that the users of Otis equipment were entitled to all of the service facilities of the manufacturer—dating back to the very first elevators. This idea had grown over the years until, in 1921, we arranged to take complete care of elevators, for a flat monthly charge, and to keep them in their original operating condition forever, if need be. These Maintenance contracts turned out to be relatively depression-proof, and today, with four times the Maintenance contract business that we had in the 1930's, Otis Maintenance is an important and highly successful part of the Company's business.

The year 1941 saw the clouds of war, for the fourth time in Otis history, put a stop to commercial building construction. For five years the manufacturing facilities and organization of the Company were devoted entirely to the production of essential elevators and repair parts, and of a host of products for the Army, Navy and Air Force. These included aircraft engine crankcases, landing gear assemblies, gun turrets for Navy planes, recoil mechanisms for 90 and 155 M.M. guns, and many types of electrical equipment—all of which were in addition to elevators for war plants, hospitals, ordnance depots, cruisers and aircraft carriers.

In his 1945 letter to stockholders, Mr. L. A. Petersen reported, "A partial conception of the size and nature of this job may be gathered from the fact that during the war years Otis Elevator Company manufactured and delivered to the armed services and to other contractors more than fifty highly precise products foreign to our normal business having an aggregate value in excess of $200,000,000."

* * * *

Otis elevators served many aircraft carriers during World War II.

The United Nations headquarters group is served by 32 Otis elevators and 12 escalators, all under Otis Maintenance. The Autotronic elevators operate at speeds up to 1200 feet per minute.

In 1946 the pent-up demand for new elevators and for modernization of existing equipment created a flood of orders 42% greater than the previous peak year of 1929. It was not expected that this volume of business could continue, but sales in the seven post-war years have been greater than during the first 75 years of Otis history.

One of the Otis developments that caused this demand for elevators is the result of wartime achievements in electronics. In an effort to take the human element out of elevator operation through the years, Otis had developed elevators that could do about everything but think. Now they are built to "think," too. With Autotronic Elevatoring the cars are operated—automatically and electronically—as a coordinated group. The attendant simply registers floor calls and initiates door closing.

Modern structures such as Lever House, New York, rely on Autotronic Elevatoring for maximum quantity and quality of service.

From its fascinating electronic buttons to the electrical 'brain' which supervises each elevator's travel, AUTOTRONIC Elevatoring is new. It is new in the AUTOmatic supervision it provides, and in its use of the latest elecTRONIC techniques and control devices.

Autotronic Elevatoring applies an entirely new concept of matching elevator service to changing traffic flow. It is the first elevator system to handle all of today's traffic patterns completely automatically.

Autotronic Elevatoring is the only system that automatically readjusts itself when traffic surges change the normal operation, or when cars are taken out of service. It is the only system that automatically measures passenger waiting time and prevents overlong waits. It takes complete charge of the cars and provides automatic supervision throughout every traffic period.

11
12
10
9
7
5
3
1

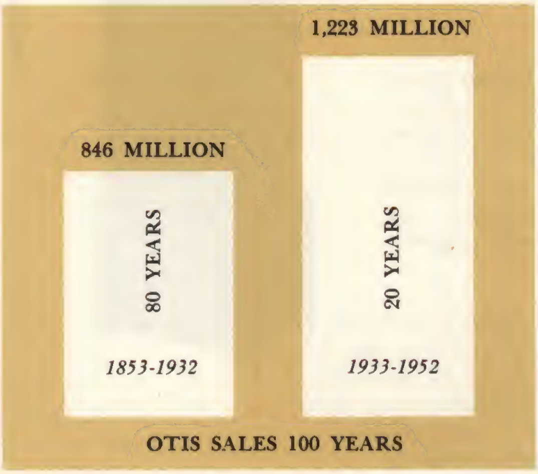
The Atlantic Refining Building, Dallas, Texas, first to be served by Autotronic —Without Attendant— *Elevatoring.*

With elevators that operate automatically as a group, only one more step is needed to eliminate the human element entirely. That was first taken in 1950 at the Atlantic Refining Company building in Dallas, Texas. Here Autotronic—Without Attendant—Elevatoring was installed—the first self-service elevators for busy office buildings. Electronic equipment makes the car operation completely automatic and safe.

Otis Autotronic—Without Attendant—Elevatoring offers the only substantial saving in building operation that is available today. It saves up to $7,000 a car, each year, and furthermore has been extremely popular with elevator passengers.

Although only three years old, Otis Autotronic—Without Attendant—Elevatoring is now operating in, or on order for, a large number of buildings from coast to coast. It is possible that this latest Otis elevator development may prove to be one of the most important in the past one hundred years.

During the next hundred years the Otis Elevator Company can be expected—as in the past—to keep right on inventing the elevator of the future.



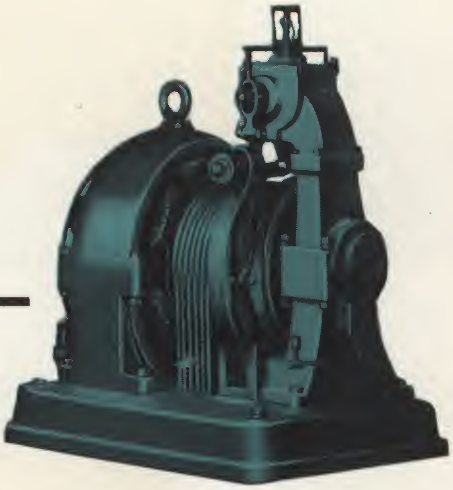
OTIS SALES 100 YEARS

A TOUCH OF EXCITEMENT . . .

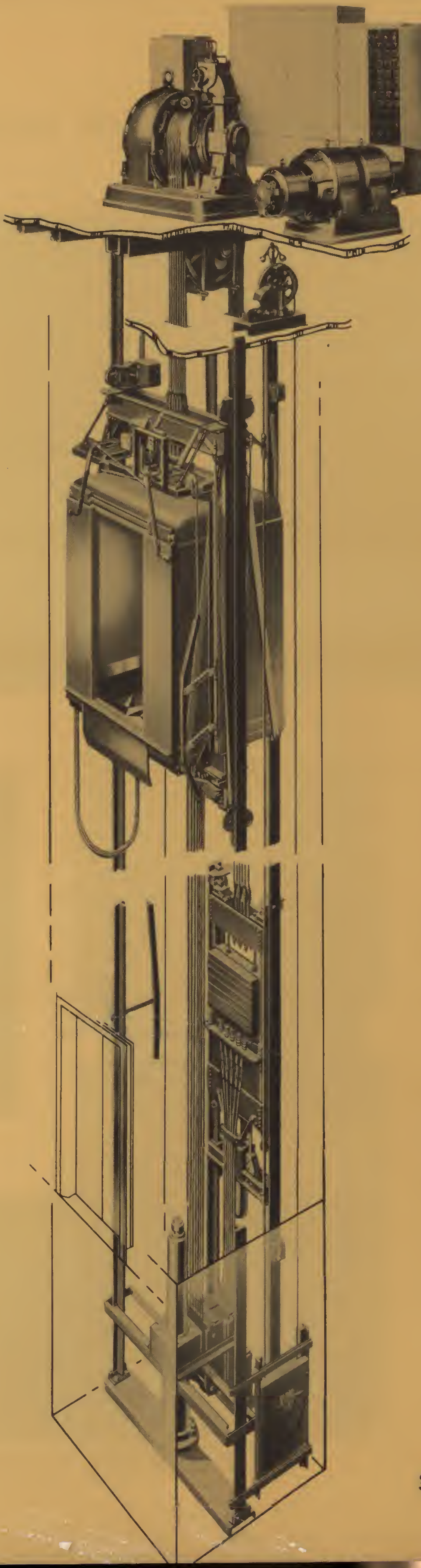
Operating an Otis elevator today is an exciting experience with the new electronic touch button. Nothing moves. A mere touch of a finger lights an electronic tube behind each directional arrow.

Your signal goes to the machine room, where the control equipment automatically studies the traffic situation and relays your call to the elevator that can serve you best.

As the elevator moves up or down, a Selector automatically stops the car at your floor, levels it at the landing, controls the door operation, and operates the many signals.



Thus with a mere touch you control a high speed hoisting machine, often capable of better and faster service than an experienced elevator operator could provide.



The elevator you operate is a single unit, as tall as the building in which it is installed, and completely manufactured in Otis factories.

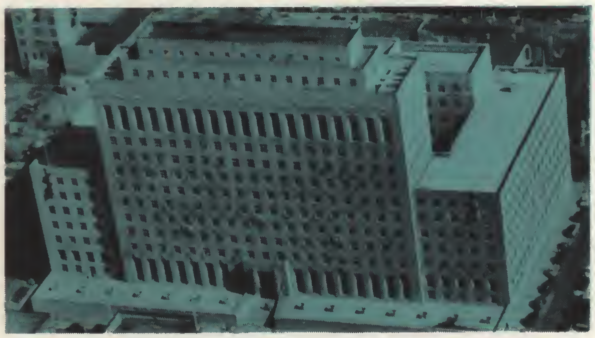
SOME MODERN BUILDINGS THROUGHOUT

MEXICO CITY, MEXICO
University City

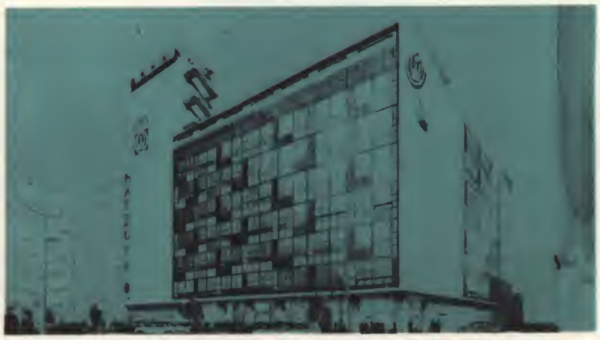
DUISBURG, GERMANY
Demag Office Building

LONDON, ENGLAND
London University

TORONTO, CANADA
Bank of Nova Scotia



JOHANNESBURG, SOUTH AFRICA
Anglo American Building



TOKYO, JAPAN
Matsuya Department Store

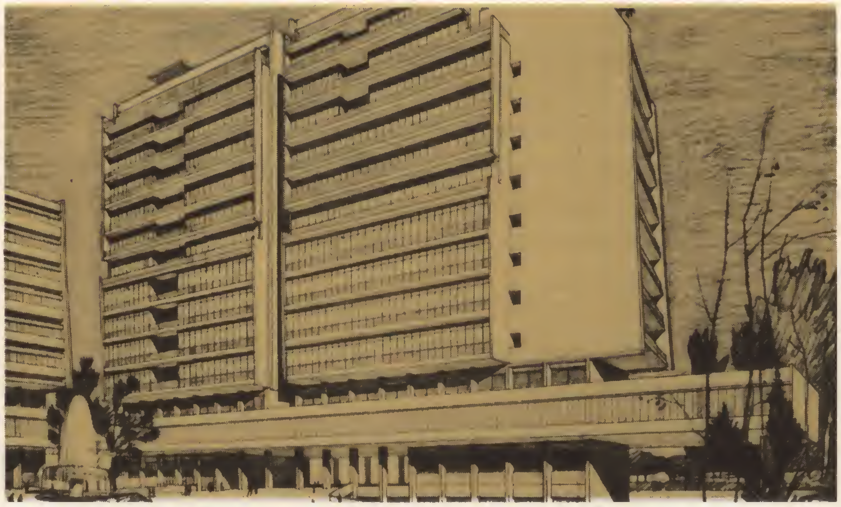
THE WORLD EQUIPPED WITH OTIS ELEVATORS

BOGOTA, COLOMBIA
Hotel Tequendama

SYDNEY, AUSTRALIA
St. Margaret's Hospital

MARSEILLES, FRANCE
ATBAT Apartment House

RIO DE JANEIRO, BRAZIL
U. S. Embassy Office Building



MILAN, ITALY
Palmolive Building

CARACAS, VENEZUELA
Avenida Bolivar Building

Early elevator service was almost entirely at the mercy of the operator.

Some "Firsts" of the

1853 Elisha Graves Otis invented the first safe elevator and founded the elevator industry. The first elevator sold was at 275 Hudson Street, New York City.

1857 The first passenger elevator was installed by Otis in a store at Broadway and Broome Street, New York City.

1860 The first direct-connected steam elevator was patented by Otis and installed in the store of Ball, Black & Co. in New York City.

1878 The first high-speed hydraulic elevator, introduced by Otis, made it economically possible for commercial buildings to increase in height. The Boreel Building in New York had the first group of four of these elevators.

1883 The first regular elevator inspection service was established for the benefit of customers of Otis Brothers & Co.

1889 The first successful electric elevator was installed by Otis at 335 Fifth Avenue, New York City.

1892 The first Unit Multi-Voltage (Ward Leonard) control for electric elevators was used on an Otis passenger elevator in the Edison Pearl Street Station in New York. The first high-rise installation of this type was made by Otis three years later at 54 Maiden Lane, New York City.

1894 The first recorded operatorless (push-button) elevator was installed by Otis in the New York residence of Mrs. E. I. Shepard.

First Hundred Years

Now elevator operators are entirely unnecessary — there is nothing left for them to do.

1900 The first Escalator was exhibited by Otis at the Paris Exposition.

1903 The first gearless traction electric elevator for intensive service was installed by Otis in the Beaver Building, New York City.

1915 The first self-leveling elevator was invented by Otis engineers and used for the U.S. Navy.

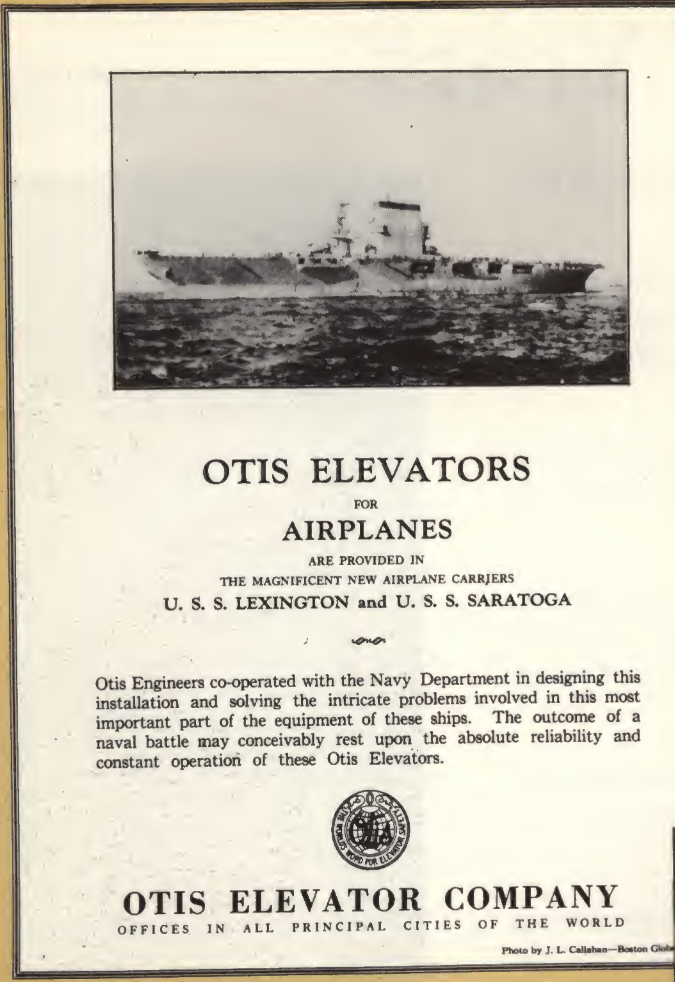
1921 The first complete elevator maintenance service was offered to Otis elevator owners. It was introduced in Springfield, Ill.

1924 The first Signal Control elevators were installed by Otis in the Standard Oil Building, New York City.

1925 The first full Collective Control elevators were developed and patented by Otis. Since the first installation in 1925 at St. Luke's Hospital, Chicago, Otis has installed more than 155 million dollars worth of this equipment, primarily in hospitals and apartment houses.

1948 The first automatic and electronic supervisory system (Autotronic) was developed by Otis for intensive operation of a group of elevators. Among the first installations were those in the United Nations Secretariat Building and 100 Park Avenue, New York City.

1950 The first group-supervised, intensive-service elevators, *without attendants in the cars,* were completed by Otis at the Atlantic Refining Company Building, in Dallas, Texas.



OTIS ELEVATORS

FOR

AIRPLANES

ARE PROVIDED IN

THE MAGNIFICENT NEW AIRPLANE CARRIERS

U. S. S. LEXINGTON and U. S. S. SARATOGA

Otis Engineers co-operated with the Navy Department in designing this installation and solving the intricate problems involved in this most important part of the equipment of these ships. The outcome of a naval battle may conceivably rest upon the absolute reliability and constant operation of these Otis Elevators.

OTIS ELEVATOR COMPANY

OFFICES IN ALL PRINCIPAL CITIES OF THE WORLD

Photo by J. L. Callahan—Boston Glob

In 1924 a contract was awarded to Otis for installation of the elevators in the first U.S. combat aircraft carriers — the SARATOGA and the LEXINGTON. Both ships, with their Otis equipment, served valiantly in World War II, the SARATOGA finally ending her career in the atomic bomb tests at Bikini.

In December, 1952, the keel was laid for a new SARATOGA — a flush deck attack aircraft carrier 1040 feet in length, with an extreme width of 252 feet. She will be completed late in 1955.

The U.S.S. SARATOGA will be the most powerful vessel ever constructed in the world. It is entirely fitting that this latest carrier, like her original namesake and many others in between, will be equipped with Otis elevators for the handling of her aircraft.

Second Century Objectives.. A Goal for the Future

The year 1953 is for Otis both an end and a beginning. It is the end of a century during which the name, Otis, became synonymous with the word, elevator; it is the beginning of a second century of continued Otis leadership and development in the field of vertical transportation.

During the past hundred years, the men and women of Otis have, by hard work, trial and error, and occasional flashes of genius, built a company and a product of which we today have just reason to be proud and, in the doing, they have contributed greatly to the building of their country.

The Otis Heritage

During this first century, there evolved an Otis organization whose character reflects the composite character, judgment and ideals of those leaders of the past who, generation after generation, selected and trained and inspired this organization. It is an organization whose roots go deep into the past, and which has a tradition of loyalty to the Company not easily understood by those who are not a part of it.

Similarly, the organization of the future will, to a considerable degree, reflect the judgment, character and ideals of those who now have a voice in the selection and training of those who will follow us. Clearly, it is our obligation to pass on to our successors an organization no less qualified for their task than the organization which we inherited and with which we have had the privilege of working.

During the past century, Otis established and maintained a reputation for designing, manufacturing and installing the best elevators available. At the same time, we built a reputation for trustworthy performance and fair dealing, which resulted in our becoming not only the world's largest producer of elevators but also a producer whose product commands a premium price.

That this position is not the result of chance, but rather is the result of a deliberate policy and of a conscious goal, is evident from the objectives outlined by Charles Otis in 1877:

"It should be our aim," he said, "to make our work satisfactory to our customers, not alone until we get our pay for each particular job, but until we get paid for every job we ever intend or expect to do for anyone, to the end of time; to get every customer we can and to keep every one we get—both for his work and for his influence.

TULANE
LIBRARY

"We must keep in mind," he said, "that the great objects of doing business are (1) to give occupation, (2) to achieve success, and (3) to make money, and that we shall not accomplish very much of the first two of these objects if we fail in the last."

Our Goal for the Future

At the beginning of our second century of operation under the name of Otis, it is appropriate to consider what we *now* regard as our purpose and objective and what we *now* believe to be the justification for our continued existence.

Without attempting to be epigrammatical, it seems to me that our objective should be:

To build the best products in our field; to continually improve these products in design and in method of production and installation so that they can continue to be sold at a profit sufficient to

> **(a)** permit payment to investors of a return on their investment which will furnish an adequate incentive to save and invest in this or other useful competitive enterprises,
>
> **(b)** permit stable employment of a carefully selected and trained organization,
>
> **(c)** make possible such wages, salaries and working conditions as will result in the maximum incentive and capacity for production for the ultimate good of the greatest number.

This objective is based on the belief that the greatest good for the greatest number can result only from maximum production of useful goods equitably distributed. It is also based on the belief that maximum production is obtainable only through competitive enterprise, with such incentives as are necessary to prompt capital to provide the required tools and to stimulate all types of labor to the greatest possible productive effort consistent with their spiritual and physical well being.

It will be noted that, in common with Mr. Charles Otis, it is recognized that, first and foremost, the purpose of a business must be to satisfy its customers to the end that they will continue to buy the product at a profitable price. Failing in this, all other objectives must be abandoned—including the fundamental objective of continued operation.

Obviously—a successful business must provide for its own future existence, if it is to accomplish anything else. However, mere existence is the *minimum* requirement. The real justification for a company's survival must be measured by the contribution which it makes to the general welfare.

In common also with Mr. Otis, we recognize the importance of providing employment—but only when employment results in, or contributes to, useful production or gratification of human needs. Employment which merely wastes time is a criminal waste of human lives and human energy and is grossly inconsistent with the objectives of a legitimate business.

Our Personal Obligation

The ideal for which we should strive is a company which provides every person in its organization with frequent opportunity to test his maximum capacity and which provides a constant incentive to increase that capacity and to devote it to useful ends.

There is so much in this world that requires doing and the doing of it requires so much human energy and intelligence that we cannot tolerate that which wastes this energy and intelligence and which stultifies the ambition which is necessary to make it do useful work. We must measure our own individual success not primarily by the position we attain but by the extent to which we are utilizing to the utmost the talents and capacity with which we are individually endowed and also by the extent to which we make it possible for others to do the same thing.

The Role of Competitive Enterprise

The United States has reached a position of world leadership primarily, I believe, because, throughout the greater part of its history, emphasis has been laid upon the importance of the individual and upon the importance of maintaining individual opportunity and powerful incentives for individual effort and accomplishment. The resulting competitive enterprise has produced a standard of living and a capacity for production the like of which the world has never seen.

Nevertheless, there has arisen a contrary philosophy, backed by the ruthless power of a foreign dictator state, and the American system of living and producing is on trial before the world.

The Challenge to American Business

Now, at long last, the American people have once more called upon American business men to restore the faith of the country in the basic principles upon which our nation was established and to stage such a demonstration of the advantages of democratic competitive enterprise that the fallacy and folly of socialism and communism will be self evident to all the people of the world who are free to learn—and, ultimately, even to those behind the iron curtain.

It is a crisis greater than any previously faced by the American people and a challenge to the business men of the country which they must accept or fail miserably in the defense of the principles in which they have professed a profound belief.

Our Share of the Job

As a part of the business world, we share in the obligation to demonstrate the superiority of our system of democratic competitive enterprise in providing for the general welfare.

Our share in this demonstration is to so work and so manage the affairs of our Company as to help raise the level of accomplishment of the business community. Then confidently, aggressively, persistently and intelligently we must acquaint, first of all the people of our own country and then the other people of the world, with what business is, has done and can do and the vital part which business has played and must continue to play in building up and maintaining the standard of living, way of life and defense of our country.

The Otis Elevator Company is to thousands of employees, stockholders and customers a representative of business and an example of the operation of the competitive enterprise system. It should be our purpose to make that example a good one.

L A Petersen

President

PRINTED IN U.S.A.

FIRST SAFE ELEVATOR
ELISHA GRAVES OTI
FOR ONE HUNDRED YEARS THE WORLDS WORD FOR ELEVATORS
Otis
1853-1953

OTIS ELEVATOR COMPANY
260 ELEVENTH AVE.
NEW YORK 1, N. Y.

Digitized by:

APT INTERNATIONAL

ASSOCIATION FOR PRESERVATION TECHNOLOGY
www.apti.org

For the

BUILDING TECHNOLOGY HERITAGE LIBRARY

https://archive.org/details/buildingtechnologyheritagelibrary

From the collection of:

Tulane University

SOUTHEASTERN ARCHITECTURAL ARCHIVE
SPECIAL COLLECTIONS
HOWARD-TILTON MEMORIAL LIBRARY

http://seaa.tulane.edu